A.D. 1853 . . . . N° 530.

SPECIFICATION

OF

SIMON O'REGAN.

APPARATUS FOR CONSUMING SMOKE.

LONDON:
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Apparatus for Consuming Smoke.

PROVISIONAL SPECIFICATION left by Simon O'Regan at the Office of the Commissioners of Patents, with his Petition, on the 3d March 1853.

(*Void by reason of notice to proceed not having been given within the time prescribed by the Act.*)

I, Simon O'Regan, of Belfast, do hereby declare the nature of the said Invention for "Improvements in Apparatus for Consuming Smoke" to be as follows:—

This Invention consists in certain new mechanical arrangements and combinations of parts, having for their object the proper admission of air into chambers, hollow bridges, and slides, to support combustion of the fuel in furnaces; and such air is caused to pass through perforated plates before coming into contact with the smoke and flame from the fuel; and further, in a simple and effective mode of admitting, shutting off, and regulating the supply of air to furnaces. And this may be effected in the manner exhibited by the illustrative drawings hereunto annexed, reference being had to the numeral figures and letters of reference marked thereon respectively, and the following description thereof.

DESCRIPTION OF THE DRAWINGS.

At Sheet 1, Fig. 1, exhibits a longitudinal and vertical section of a cylindrical-shaped boiler and furnace for consuming smoke, constructed according to this Invention; Fig. 2, is a transverse and vertical section taken through the line A, B, at Fig. 1; Fig. 3, is an end view of a boiler, shewing the construction of some of the parts hereafter referred to. At Sheet 2, Fig. 4, exhibits a longitudinal and vertical section of a cylindrical-shaped boiler and furnace, shewing another mode of arranging and disposing the several parts employed for effecting the consumption of smoke. Fig. 5, is a longitudinal section; and Fig. 6, a top plan view of a portion of a furnace arranged and combined according to this Invention. At Sheet 3, Figs. 7, 8, 9, 10, 11, 12, 13, exhibit several views of parts hereafter described and referred to, drawn to an enlarged scale. At each of the above-mentioned sheets of drawings, similar letters of reference are employed to denote corresponding parts. At Sheet 1, A, B, mark a furnace; C, 1, 2, is a hollow cast-iron bridge, placed upon a brick chamber G. The bridge C, is formed of two parts, 1, and 2; the part 1, is formed solid, and the part 2, has perforations formed through it, as shewn at Fig. 1, of Sheet 1, and Figs. 7, and 8, of Sheet 3. D, marks another hollow bridge, denominated a check air bridge, of similar construction to the bridge C, 1, 2, but placed in an inverted position beneath the boiler, and coupled together with stay rods, as shewn. E, marks another check air bridge, of similar construction to the bridges C, 1, 2, and D, 1, 2. F, marks a perforated plate of metal, mounted in a frame *c*, (and shewn more clearly at Figs. 9, 11, of Sheet 3); said plate is set over the brick chamber H, and has pivots fixed to or formed thereon, and fitted into brackets upon the frame *c*, which admits of the plate E, being moved in a circular direction by means of the bracket and rod I, I, connected thereto, as shewn: the rod I, extends from the bracket to the front of the brickwork of the furnace, to enable the attendant to cleanse the perforated plate, and so to keep the openings or perforations in such said plate as clear and free from obstruction as may be, to allow the air to pass unimpeded through the same. K, is a

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(3 SHEETS)
Sheet 1.

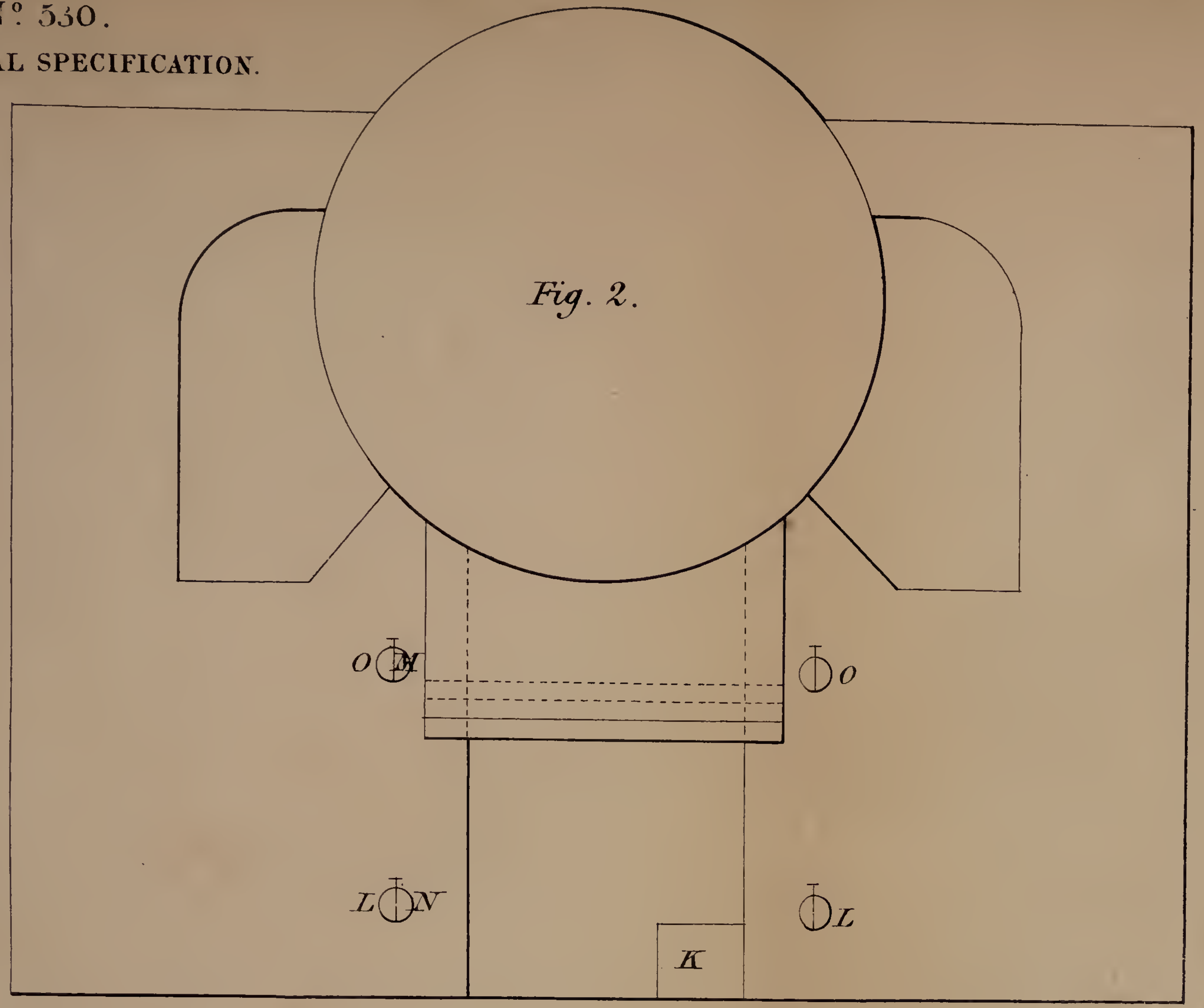
Fig. 2.

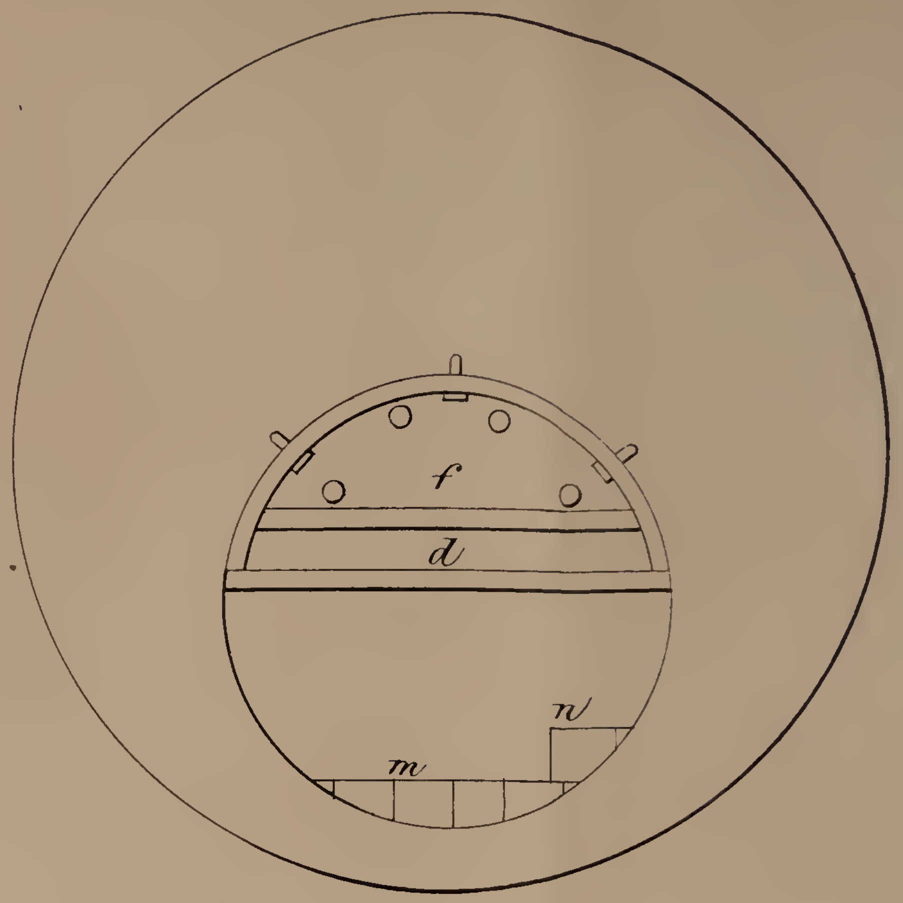
Fig. 3.

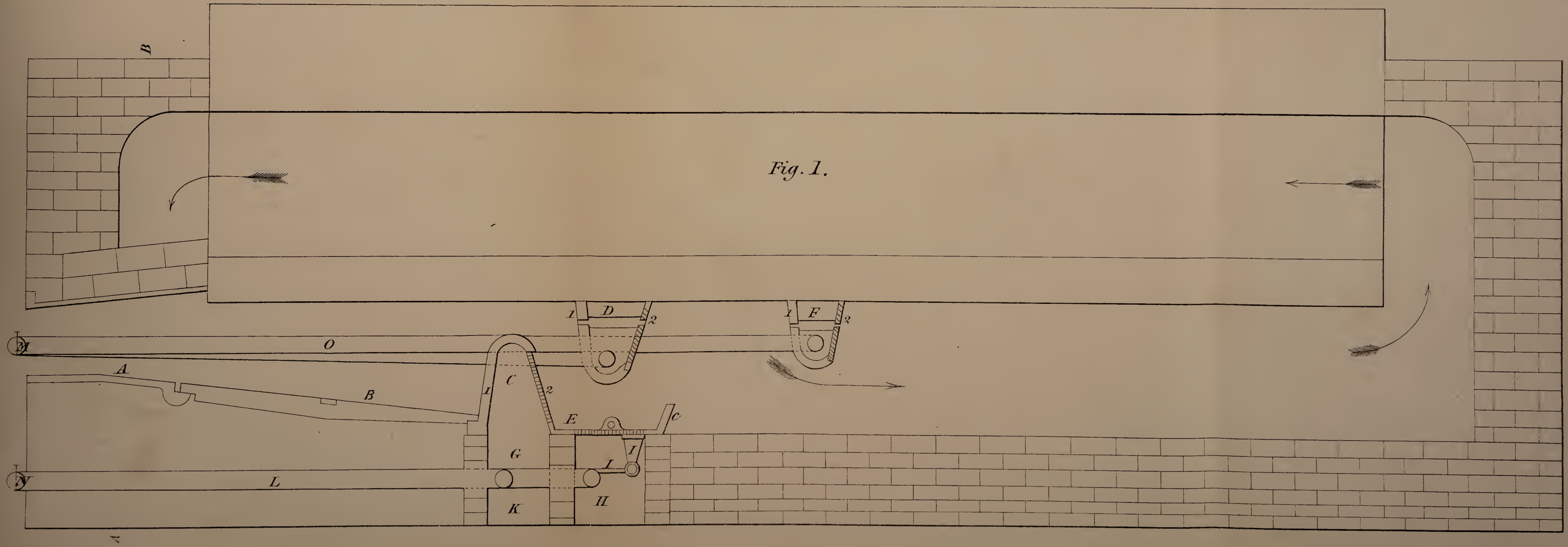
Fig. 1.

The drawing left with Provisional Specification is not colored.

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Fig. 6.

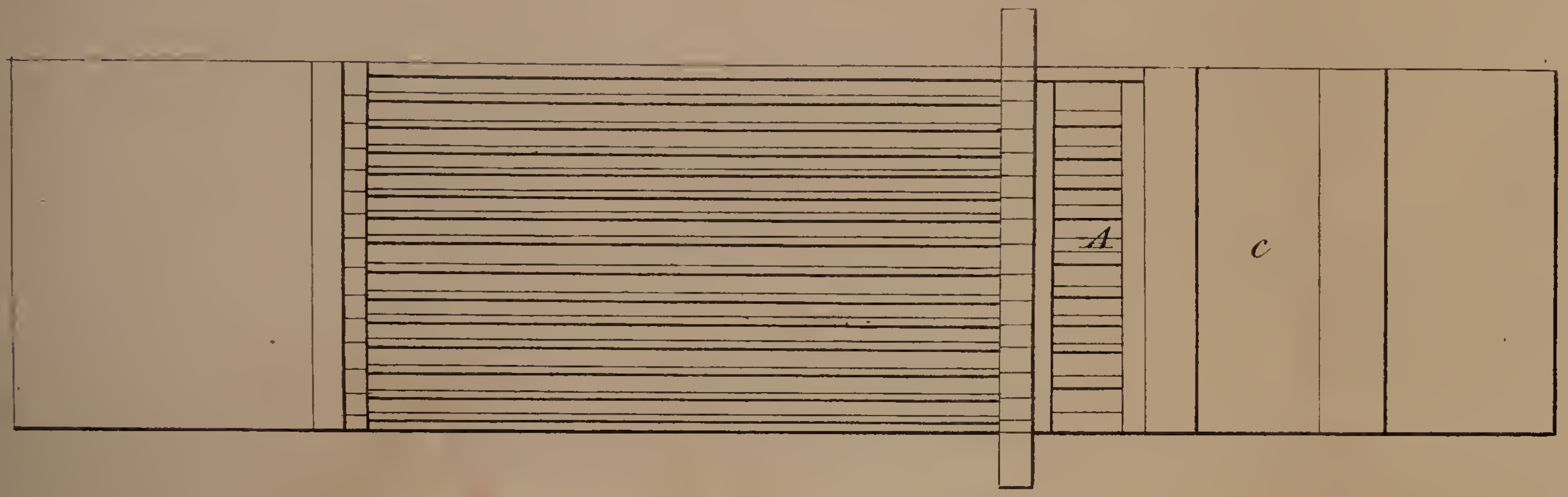


Fig. 5.

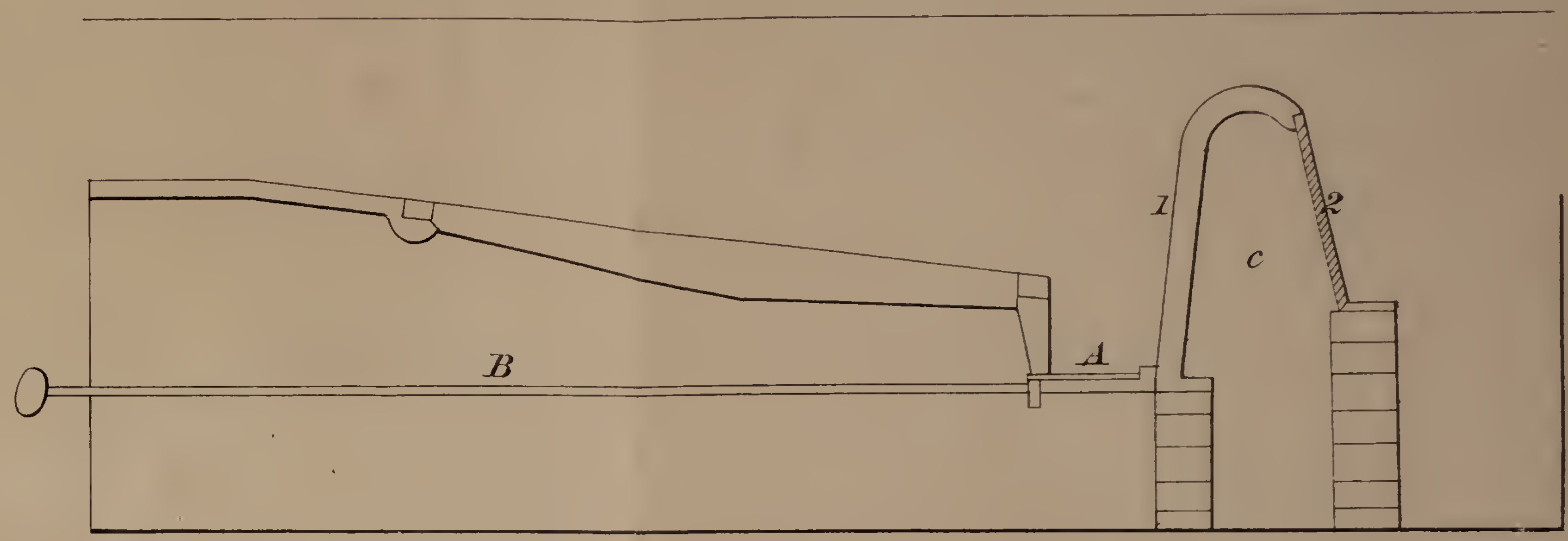
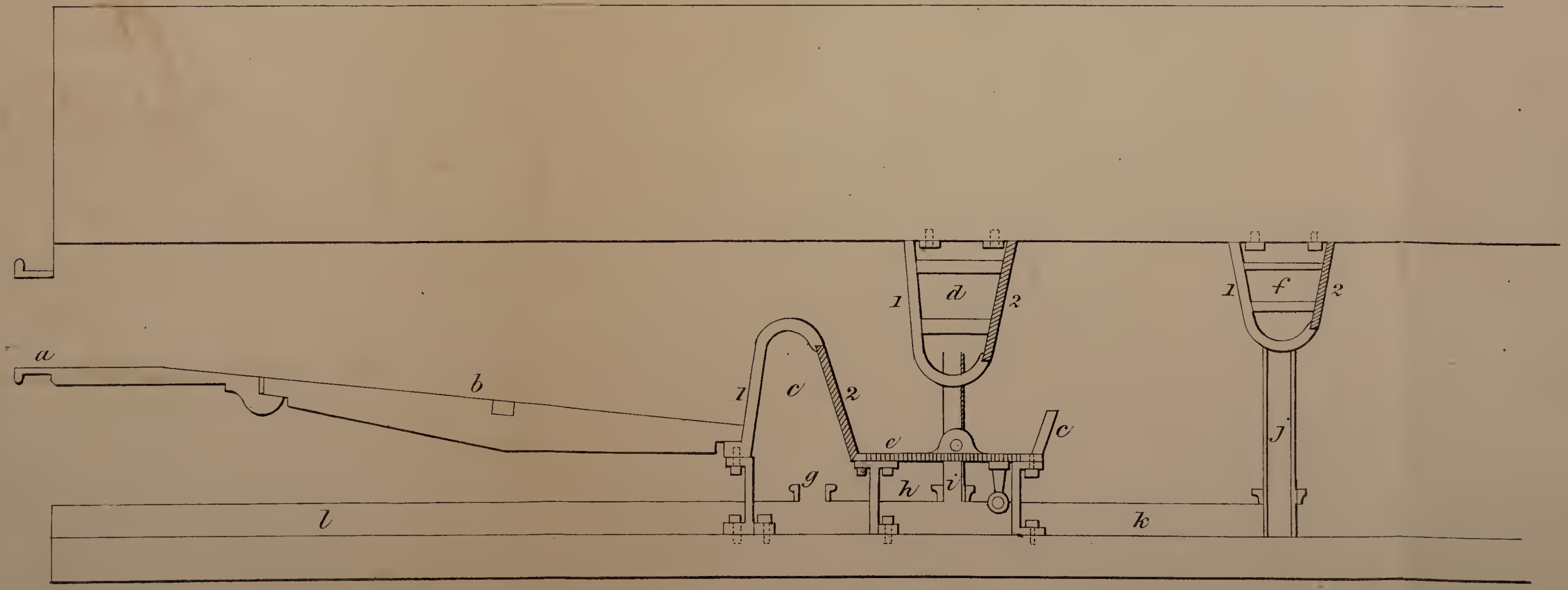


Fig. 4.



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(3 SHEETS)
Sheet 3.

Fig. 7.

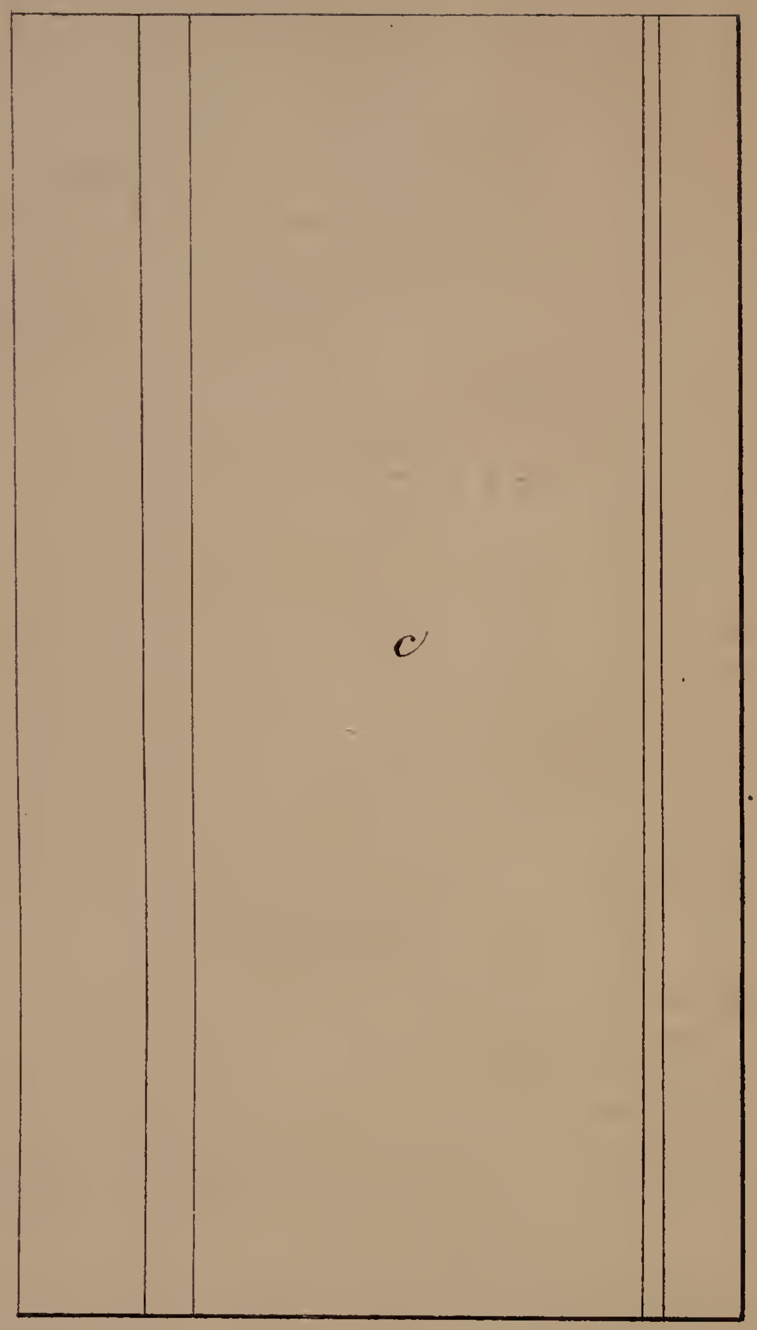


Fig. 9.

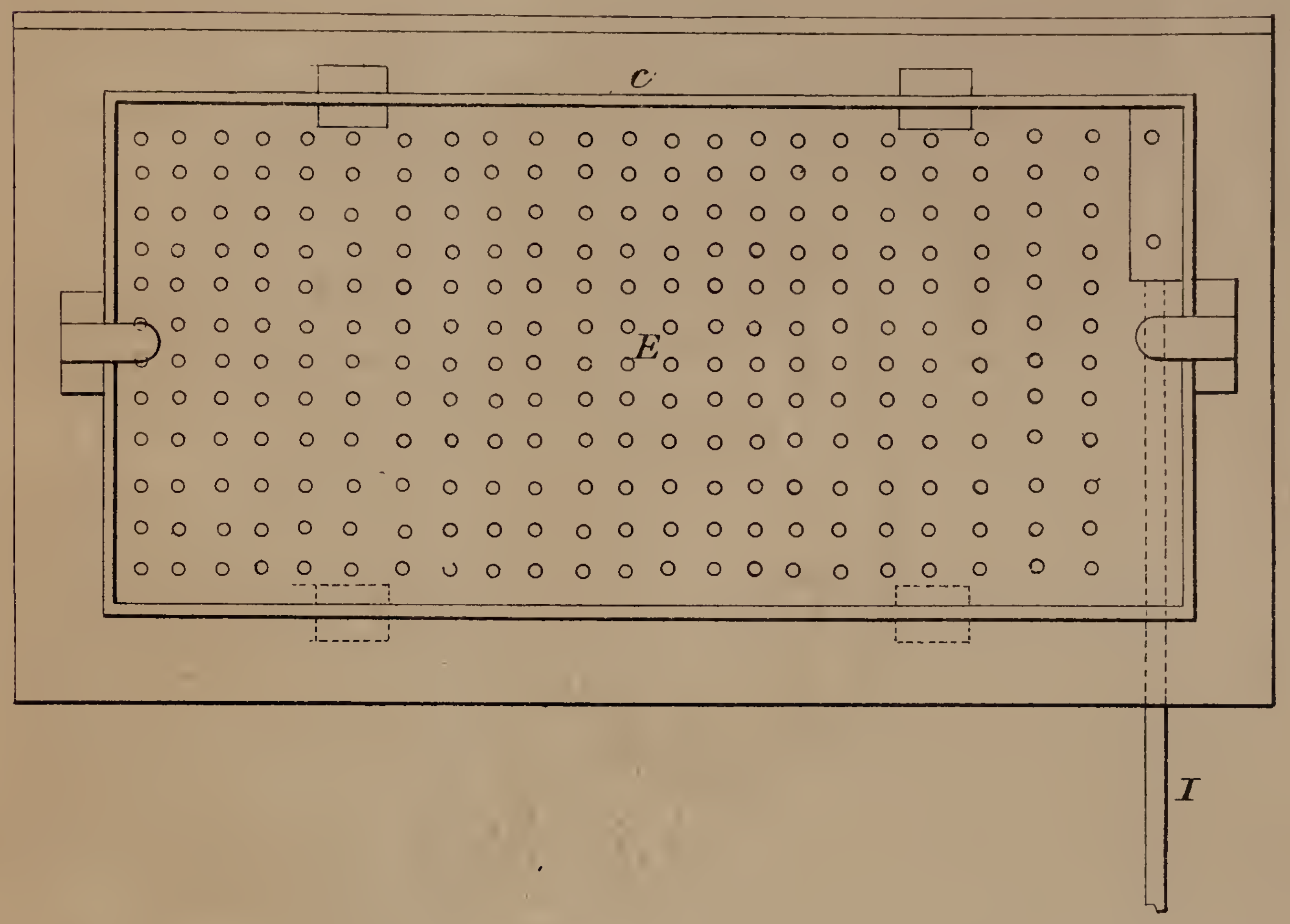


Fig. 11.

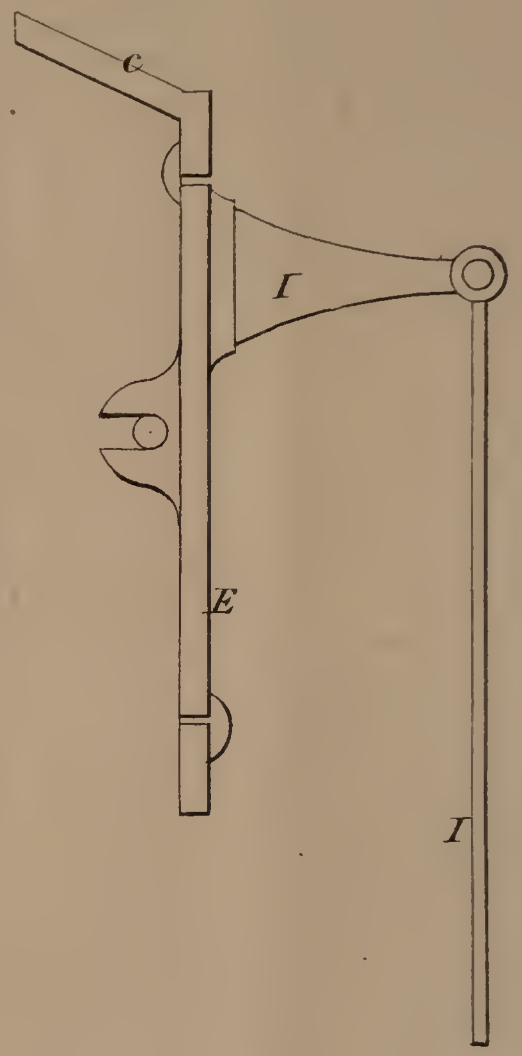


Fig. 8.

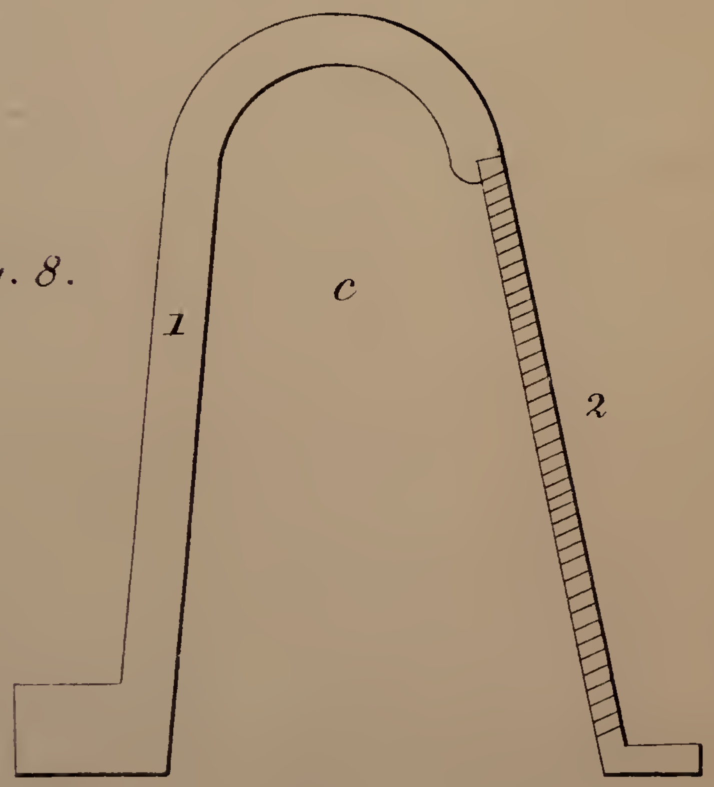


Fig. 10.

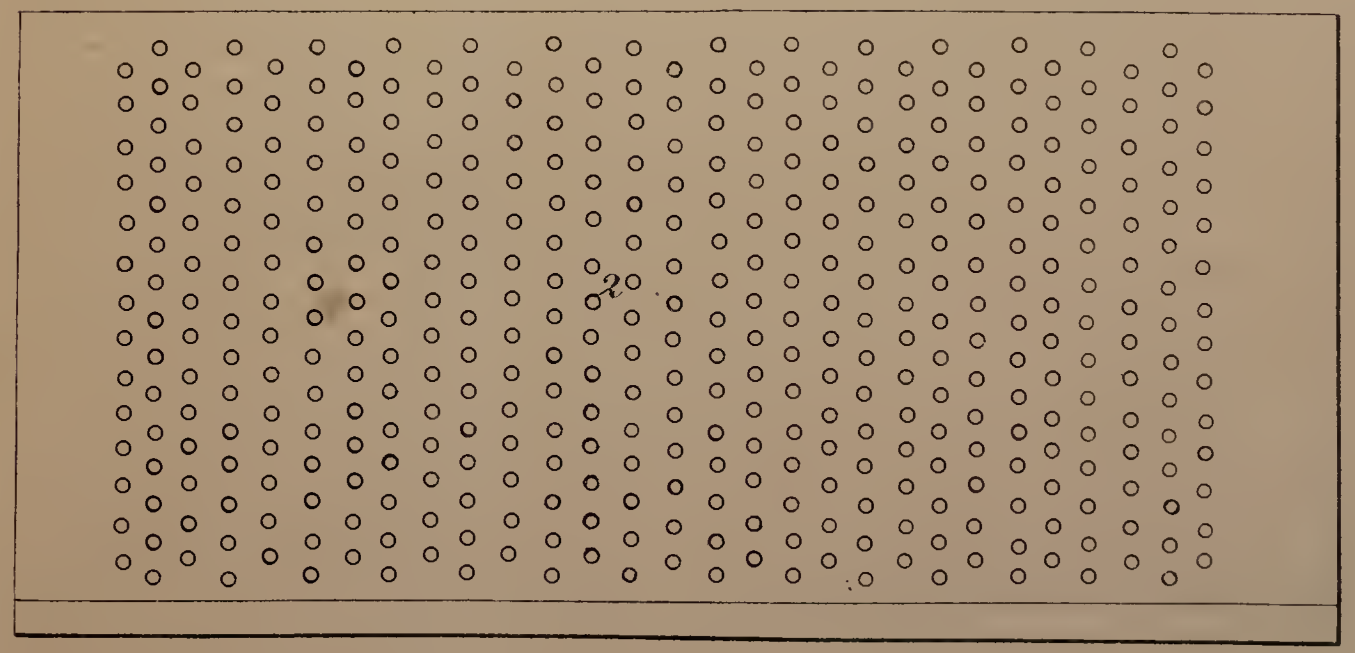


Fig. 12.

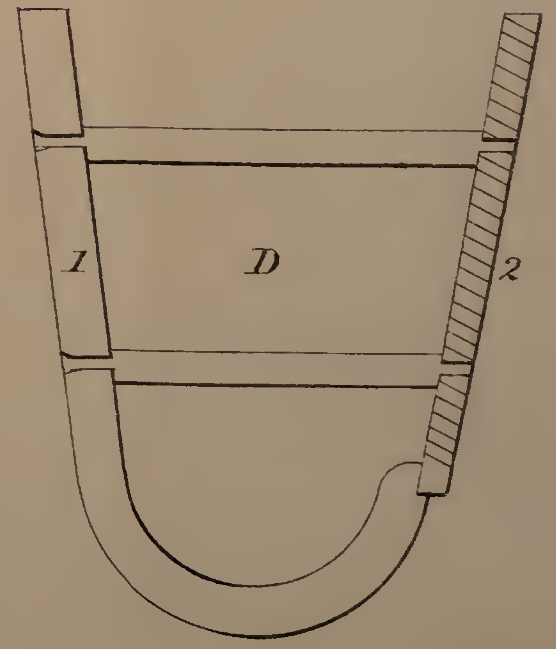
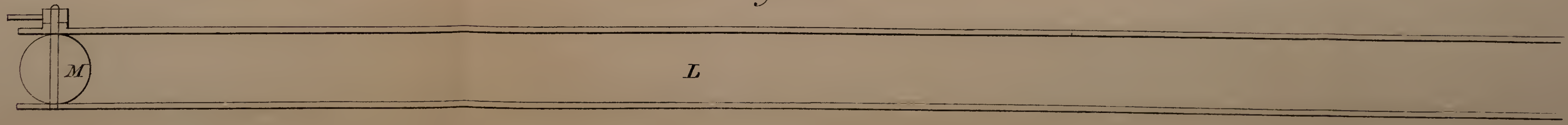


Fig. 13.



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cast-iron box fitted into the chamber G, through which passes a scraper for cleansing the chamber H, said chamber being furnished with a small door to prevent the ingress of air thereto. The hollow bridge D, is also furnished with a perforated plate, similar to the bridge C, 1, 2. O, O, and L, L, mark pipes through which air is admitted into the chambers C, 1, 2, and G, through valves M, and N, situated at the outer ends of said pipes. Each of these valves are furnished with slides or such other convenient means as will effect the proper opening and closing of the same, and there is an index attached to said valves, by which the stoker or other person attending the fire is enabled to ascertain and regulate the quantity of air admitted into the furnace for the purpose of inflaming the products given off therefrom, and thereby to prevent loss of heat which would otherwise occur. The arrangement exhibited at the several figures of Sheet 2, of the accompanying drawings, and constituting improvements in the consumption of smoke, is as follows:—*a*, marks the fire-grate door; *b*, furnace bars; *c*, hollow air bridge; *d*, check air bridge; *e*, perforated plate over chamber *h*; *f*, check air bridge; *g*, cast-iron chamber under bridge *c*; *i*, pipe for admission of air to check bridge *d*; *j*, pipe for admission of air to check air chamber and bridge *f*; *k*, horizontal pipe, communicating with the pipes *i*, and *j*, and main pipe *l*. At Fig. 3, of Sheet 1, *m*, marks an end view of the air pipes lastly above mentioned; *n*, clearing box in first chamber. It should be observed that the above-mentioned arrangement differs from that before described, with reference to Sheets 1, and 3, in the following respects: the apparatus employed for effecting the consumption of smoke is placed within the boiler at Sheet 2, whereas it is arranged or disposed beneath the boiler at Sheets 1, and 3: there is also a slight modification of the arrangement of the pipes employed for the admission of air to the check air bridges *d*, and *f*: in other respects the arrangement and construction of the several parts is precisely similar to that before mentioned with reference to Sheets 1, and 3. The arrangement exhibited at Figs. 5, and 6, of Sheet 2, is for the purpose of enabling the attendant to clear the furnace bars, and also for the admission of air to the front of the fire bridge. A, marks a perforated sliding plate, to which is attached a rod B, formed with a handle, as shewn: the attendant, by pulling the handle and rod B, allows the air to pass from the ash pit between the ends of the furnace bars and the front of the fire bridge *c*; and this arrangement is applicable to and may be used in combination with the arrangements herein-before described. And in this manner, and by these means, this Invention may be carried into practical effect, so as to constitute improvements in apparatus for the consumption of smoke, as hereinbefore described, set forth, and represented by the illustrative drawings hereunto annexed, and forming part of this Specification.

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